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EXAMINER				
PEREIRO, JORGE ANDRES				
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3749				
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08/19/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,081

**Applicant(s)**

ABE, TOSHIHIRO

**Examiner**

JORGE PEREIRO

**Art Unit**

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)
- Paper No(s)/Mail Date 03/30/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: On page 11, line 4, the phrase: "the fluid material L" should read --the neutralizer-- .

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

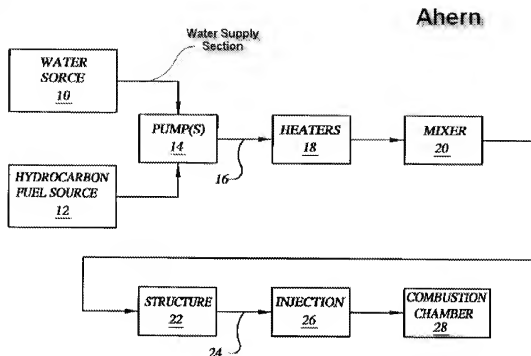
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 10, 11-12, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,487,994 to Ahern et al. ("Ahern").
4. In re claim 1, with reference to figure 1 below, Ahern discloses a combustion system comprising a combustion chamber body (28) to which a fluid material as a blend of a combustible material (12) admixed with water (10), under interception of air supply (see col. 9, ll. 57-58), is introduced to cause thermal decomposition of water in said fluid material and combustion of the combustible material (see col. 5, ll. 25-34) with discharge of the gas after combustion (inherent), and a fluid supply section (encompassing pumps 14 through outlet 24) for introducing the aforementioned fluid material to the aforementioned combustion chamber body.

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**FIG. 1**

5. In re claim 10, with reference to figure 1 above, Ahern discloses all of the claim limitations including wherein a fluid storage tank (22) for storing the fluid material as a blend of said combustible material admixed with water is provided.
6. In re claim 11, with reference to figure 1 above, Ahern discloses wherein a water supply section (referenced in figure 1 above) for supplying water into said fluid storage tank is provided and a mixer (20) for agitating the fluid material in the fluid storage tank is provided in the fluid storage tank (see col. 5, ll. 13-24).
7. In re claim 12, with reference to figure 1 above, Ahern discloses wherein said fluid supply section is provided with a transient tower (18) through which said fluid material passes, a high-pressure pump (14) provided at the lower part of the transient tower for forcibly feeding said fluid material to the upper part of the transient tower, and an ejection body (26) connected to

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the upper part of said transient tower through a junction pipe (24) for ejecting the fluid material forcibly fed into said combustion chamber body into the combustion chamber body.

8. In re claim 17, Ahern discloses all of the claim limitations including wherein an oxygen supplier for supplying oxygen into said combustion chamber body is provided (see col. 9, ll. 57-58).

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*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 5,154,142 to Kamo ("Kamo").

12. In re claim 13, Ahern discloses all of the claim limitations except for disclosing wherein a magnetic field generator attached to said junction pipe for applying a magnetic field to the fluid material flowing through the junction pipe is provided.

13. Nonetheless, with reference to figure 1 below, Kamo discloses a system and method for providing ionized water and fuel to a combustion chamber wherein a magnetic field generator (66) attached to a junction pipe for applying a magnetic field to the fluid material flowing through the junction pipe is provided.

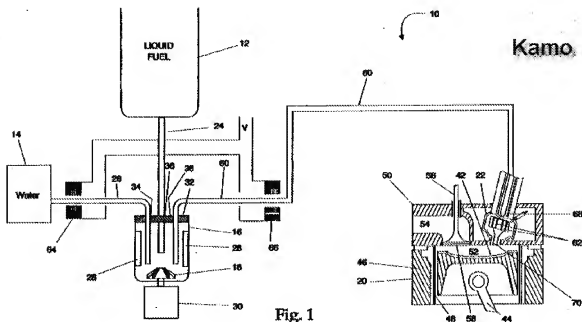


Fig. 1

14. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern to include a magnetic field generator attached to said junction pipe as taught by Kamo, since such a modification improves combustion efficiency and reduces harmful emissions by exposing the fuel to magnetic fields which energize the molecules in the fuel prior to combustion which is believed to reduce the surface tension of the fuel and thereby increase fuel oxidation (see Kamo, col. 1, ll. 29-31).

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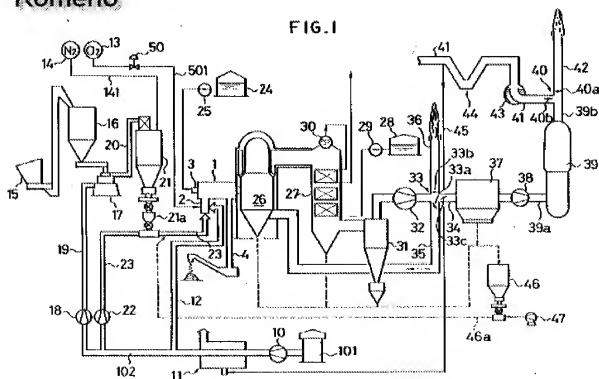
15. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 4,986,199 to Komeno et al. ("Komeno").

16. In re claim 2, Ahern discloses all of the claim limitations except for disclosing wherein a gas recovery section for recovering the gas exhausted from said combustion chamber body is provided.

17. Nonetheless, with reference to figure 1 below, Komeno discloses a method for recovering waste gases wherein a gas recovery section (31) for recovering the gas exhausted from a combustion chamber body is provided.

**Komeno**

**FIG. 1**



18. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern to include a gas recovery section as taught by Komeno,

since Komeno states at column 4 lines 56-63 that such a modification would allow recovery of substantial quantities of incompletely burned by-products such as carbon monoxide and hydrogen, so that the gases can be recovered, after cooling and purification by a filter and a desulfurization unit, for use as useful fuel for boilers, metallurgical or other chemical processes.

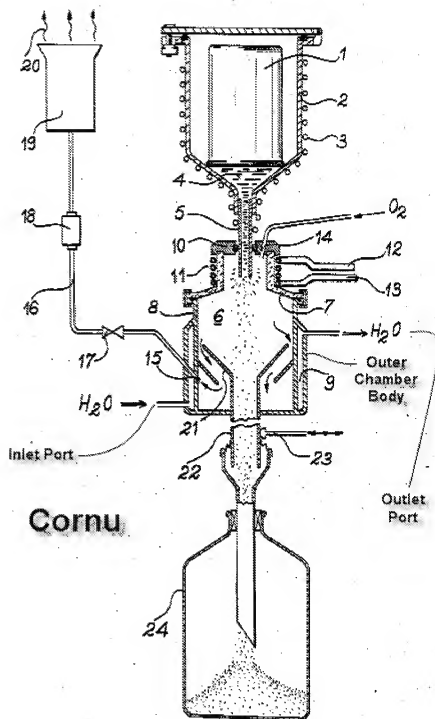
19. In re claim 3, with reference to figure 1 of Komeno above, Ahern in view of Komeno discloses all of the claim limitations including wherein said gas recovery section (31) is provided with a centrifugal gas separator (see Komeno, col. 5, ll. 44-52) for separating and extracting gas by the type.

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20. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 4,631,384 to Cornu ("Cornu").

21. In re claim 4, Ahern discloses all of the claim limitations but does not disclose wherein an outer chamber body surrounding said combustion chamber body is provided, a lower opening for discharging an ash content in the combustion chamber body is provided at the lower part of said combustion chamber body, a discharging passage section for discharging the ash content from the lower opening to the outside of said outer chamber body is provided, a space between said outer chamber body and the combustion chamber body is constituted as a coolant fluid passage through which a coolant fluid passes to cool said discharging passage section, an inlet port through which the coolant fluid flows in is provided at the lower part of the outer chamber body, and an outlet port through which the coolant fluid flows out is provided at the upper part of the outer chamber body.

22. Nonetheless, with reference to the figure below, Cornu discloses a combustion chamber (6) wherein an outer chamber body (referenced in the figure) surrounding said combustion chamber body is provided, a lower opening (21) for discharging an ash content in the combustion chamber body is provided at the lower part of said combustion chamber body, a discharging passage section (22) for discharging the ash content from the lower opening to the outside of said outer chamber body is provided, a space (9) between said outer chamber body and the combustion chamber body is constituted as a coolant fluid (water) passage through which a coolant fluid passes to cool said discharging passage section, an inlet port (referenced in the figure) through which the coolant fluid flows in is provided at the lower part of the outer chamber body, and an outlet port (referenced in the figure) through which the coolant fluid flows out is provided at the upper part of the outer chamber body.



23. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combustion chamber of Ahern to include an ash discharge passage and surround both with a cooling fluid jacket as taught by Cornu, since such a modification would allow for temperature control of the combustion chamber wall thereby providing flexibility as to the choice of material used and would also provide a means of utilizing what would otherwise be wasted heat energy for other heat transfer purposes such as preheating combustion products or supplying heat for living spaces via forced air means.

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24. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 4,631,384 to Cornu ("Cornu") and further in view of US Patent Application Publication 2002/0155038 to Ohi et al. ("Ohi").

25. In re claim 5, Ahern in view of Cornu discloses all of the claim limitations but does not disclose wherein a water separator for separating the water content from the ash content discharged from said discharging passage section is provided.

26. Nonetheless, Ohi discloses a combustion exhaust gas treatment wherein a water separator (12) is used to separate the water content from a mixture of ash and water.

27. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combustion system of Ahern in view of Cornu to include a water separator for separating the water from the ash/water mixture exiting the combustion process as taught by Ohi, since such a modification would allow for recycling both the ash and the water for other uses thereby minimizing the environmental impact of the combustion process and providing a lower cost of operation.

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28. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 4,295,824 to Wens ("Wens") and US Patent 3,917,479 to Sayce et al. ("Sayce").

29. In re claim 6, Ahern discloses all of the claim limitations but does not disclose a combustion chamber characterized by: providing an outer chamber body surrounding the aforementioned combustion chamber body in such a fashion that the aforementioned combustion chamber body can be driven to rotate against the aforementioned outer chamber body; providing a lower opening which intercommunicates with the inside of said combustion chamber body for introducing the fluid material, to the lower part of the aforementioned combustion chamber body; providing an upper opening which intercommunicates with the aforementioned combustion chamber body for exhausting the exhaust, to the upper part of the aforementioned combustion chamber body; constituting the aforementioned combustion chamber body of an outer cylinder and an inner cylinder; and constituting the inner cylinder of the aforementioned combustion chamber body of a heat-resistant fluid forming the inner wall of the combustion chamber body as being pressed against the outer cylinder by the centrifugal force of the aforementioned combustion chamber body.

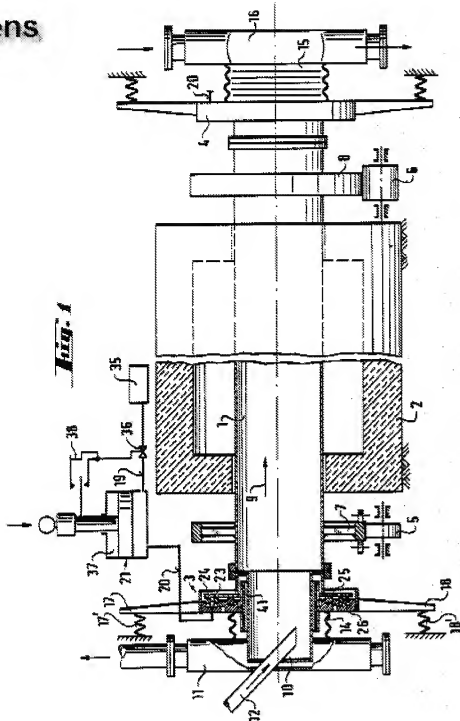
30. Nonetheless, with reference to figure 1 below, Wens discloses a rotary kiln or furnace characterized by: providing an outer chamber body (2) surrounding the aforementioned combustion chamber body (1) in such a fashion that the aforementioned combustion chamber body can be driven to rotate against the aforementioned outer chamber body (see col. 2, ll. 54-56); providing a lower opening (10) which intercommunicates with the inside of said combustion chamber body for introducing the fluid material, to the lower part of the aforementioned

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combustion chamber body; providing an upper opening (15) which intercommunicates with the aforementioned combustion chamber body for exhausting the exhaust, to the upper part of the aforementioned combustion chamber body.

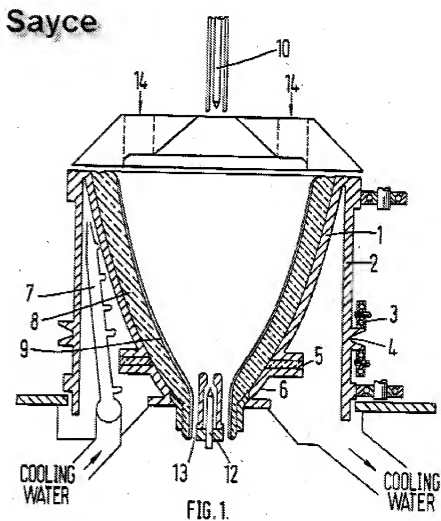
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Wens



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31. Furthermore, with reference to figure 1 below, Sayce discloses a rotary furnace with a combustion chamber body constituting an outer cylinder (1) and an inner cylinder (8); and constituting the inner cylinder of the aforementioned combustion chamber body of a heat-resistant fluid forming the inner wall of the combustion chamber body as being pressed against the outer cylinder by the centrifugal force of the aforementioned combustion chamber body (see col. 11, 33-39).



32. All of the component parts are known in Ahern and Mens and Sayce. The only difference is the combination of the “old elements” into a single device by simply combining known features of the combustion art.

33. Thus, it would have been obvious to one having ordinary skill in the art to incorporate the rotary furnace feature taught by both Mens and Sayce onto the combustion system as shown in Ahern, since rotary furnaces and kilns have been in widespread use, and known for many years and used, for example, for incinerating mixtures difficult to burn, and a rotary furnace could be used in combination with a standard paving machine to achieve the predictable results of preventing cold joints during continuous strip paving.

34. Therefore, because Ahern, Mens and Sayce all teach alternative combustion chamber designs, it would have been obvious to one skilled in the art to combine features of all three into one combustion chamber to achieve the predictable results of enhanced mixing of the combustible product due to the rotating chamber as taught by Mens and the enhanced thermal insulation of external surfaces due to the accumulation of the heat-resistant fluid forming on the inner wall of the combustion chamber body as a result of the centrifugal forces as taught by Sayce.

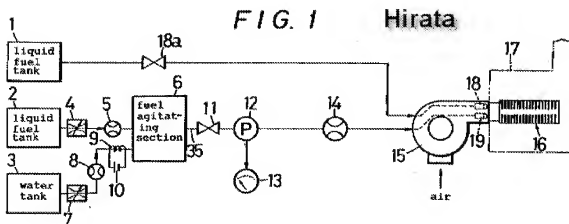
35. In re claim 7, Ahern in view of Mens and Sayce discloses all of the claim limitations including wherein the heat-resistant fluid (8) forming the inner cylinder of said combustion chamber body is constituted of ceramic melted by combustion of the combustible material in the combustion chamber body and pressed against the outer cylinder by the centrifugal force (see Sayce, col. 2, ll. 2-10).

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36. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 5,249,957 to Hirata ("Hirata").

37. In re claim 8, Ahern discloses all of the claim limitations but does not disclose wherein an ignition device for igniting the combustible material supplied to said combustion chamber body is provided.

38. Nonetheless, with reference to figure 1 below, Hirata discloses a fuel-water combustion system wherein an ignition device (not shown, but see col. 6, ll. 36-41) for igniting the combustible material supplied to said combustion chamber body (16) is provided.

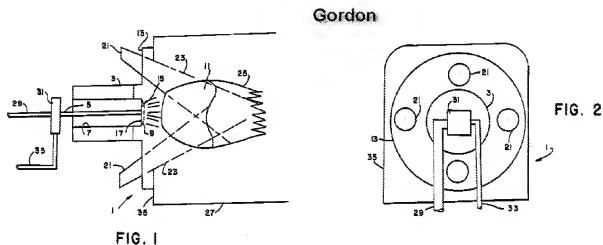


39. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern to include an ignition device as taught by Hirata, since Hirata states such a modification would provide a means of igniting the fuel-water combustible mixture within the combustion chamber (see Hirata, col. 6, ll. 36-41); particularly at system startup when the temperature within the combustion chamber is insufficient to initiate combustion.

40. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of Hirata and further in view of US Patent 5,370,525 to Gordon ("Gordon").

41. In re claim 9, Ahern in view of Hirata discloses all of the claim limitations but does not disclose wherein said ignition device is constituted of a high-frequency heater body provided in said combustion chamber body.

42. Nonetheless, with reference to figures 1 and 2 below, Gordon discloses a microwave combustion enhancement device wherein an ignition device (21) is constituted of a high-frequency heater body provided in said combustion chamber body (see Gordon abstract).



43. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the ignition source of Ahern in view of Hirata to incorporate an ignition device constituted of a high-frequency heater body provided in said combustion chamber as taught by Gordon, since Gordon states that such a modification would provide high-frequency microwaves which would excite carbon atoms in the fluidized fuel mixture and improve complete oxidizing of the fuel with increased flame temperatures and reduced noxious emissions (see Gordon abstract).

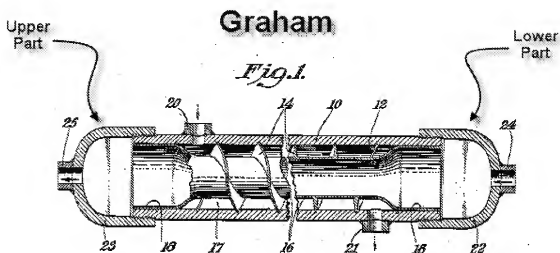
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44. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of Kamo and further in view of US Patent 2,341,319 to Graham et al. ("Graham").

45. In re claim 14, with reference to figure 1 of Kamo above, Ahern in view of Kamo discloses all of the claim limitations including wherein an exhaust pipe (54) through which a gas exhausted from the upper opening provided at the upper part of said combustion chamber body (52) passes is provided.

46. However, Ahern in view of Kamo does not disclose the exhaust pipe is provided with a spiral pipe disposed in said transient tower from the upper part thereof to the lower part thereof for performing cross heat exchange between the gas in the exhaust pipe and the fluid material in the transient tower.

47. Nonetheless, with reference to figure 1 below, Graham discloses a spiral pipe heat exchanger wherein a spiral pipe (17) disposed in said transient tower (10) from the upper part (referenced in the figure) thereof to the lower part (referenced in the figure) thereof for performing cross heat exchange between the gas in the exhaust pipe and the fluid material in the transient tower (see Graham, pg. 1, ll. 1-6).



48. All of the component parts are known in Ahern, Kamo, and Graham and all are related to the process of combustion. The only difference is the combination of the "old elements" into a single device by coupling them together in fluid communication.

49. To provide the device of Ahern in view of Kamo with a spiral pipe heat exchanger would have been obvious to one of ordinary skill in the art, in view of the teachings of Graham, since all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods (piping) with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention, i.e., one skilled in the art would have recognized that the spiral pipe heat exchanger used in Graham would allow the combustion system of Ahern in view of Kamo to exchange the heat from the combustion chamber exhaust gases with the incoming combustible fluid material, for the obvious and well known in the art purpose of preheating the incoming fuel supply.

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50. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of Kamo and Graham and further in view of US Patent Application Publication 2003/0024153 to Tsai ("Tsai").

51. In re claim 15, with reference to figure 1 of Ahern above, Ahern in view of Kamo and Graham discloses wherein a fluid storage tank (22) for storing the fluid material as a blend of said combustible material admixed with water is provided.

52. However, Ahern in view of Kamo and Graham does not disclose the exhaust pipe on the downstream side of said spiral pipe is disposed so that it passes through said fluid storage tank.

53. Nonetheless, Tsai discloses an emulsion of fuel oil and water in a storage tank that is heated by steam-type heating tubes (see Tsai, pg. 3, ¶ 0064).

54. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern in view of Kamo and Graham to incorporate heating pipes within the fluid storage tank as taught by Tsai, since such a modification would enhance the overall thermal efficiency of the combustion system by preheating the combustible mixture even before it reaches the inlet heat exchanger/transient tower; in other words the heat output of the combustion chamber is fully utilized to not only drive a turbine but also to preheat the products of combustion.

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55. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 4,788,822 to Mieno et al. ("Mieno").

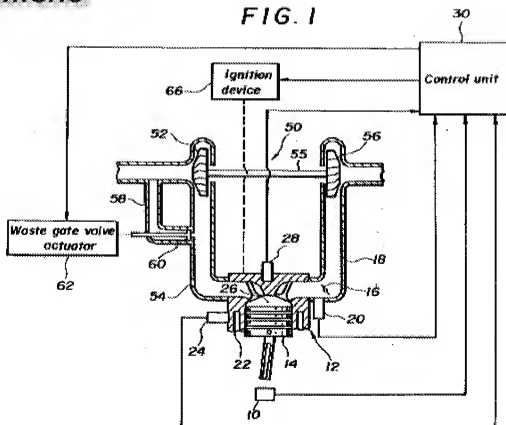
56. In re claim 16, Ahern discloses all of the claim limitations including wherein a power turbine is provided in a path of the exhaust (sec .

57. However, Ahern does not disclose wherein an exhaust pipe through which a gas exhausted from the upper opening provided at the upper part of said combustion chamber body passes is provided, and a power turbine is provided in a path of the exhaust pipe.

58. Nonetheless, with reference to figure 1 below, Mieno discloses a power turbine connected to a combustion chamber wherein an exhaust pipe (54) through which a gas exhausted from the upper opening (via exhaust valve) provided at the upper part of said combustion chamber body (26) passes is provided, and a power turbine (52) is provided in a path of the exhaust pipe.

Mieno

FIG. 1



59. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern by incorporating a power turbine in the exhaust path of the combustion chamber, particularly located at the top of the combustion chamber as taught by Mieno, since it was known in the art that combustion gases tend to flow upwards due to their increased temperature and lower volumetric density and it is also well known in the art that power turbines are often incorporated into the exhaust path of combustion gases for the purpose of generating a rotational force that is then

converted into either some other mechanical or electrical output by taking advantage of the inherent forces of pressure and velocity within the combustion gases.

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60. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 6,282,883 to Uematsu et al. ("Uematsu").

61. In re claim 18, Ahern discloses all of the claim limitations except for wherein a hydrogen supplier for supplying hydrogen into said combustion chamber body is provided.

62. Nonetheless, Uematsu discloses a hydrogen burning turbine plant wherein a hydrogen supplier for supplying hydrogen into a combustion chamber body is provided (see Uematsu, col. 1, ll. 5-10).

63. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern to incorporate a hydrogen supply along with the oxygen supply into a combustion chamber as taught by Uematsu, since such a modification would enhance the production of a high temperature steam to power a turbine (see Uematsu, col. 1, ll. 5-10).

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64. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahern in view of US Patent 5,606,923 to Fujimori ("Fujimori").

65. In re claim 19, Ahern discloses all of the claim limitations but does not disclose wherein a neutralizer injector for filling a neutralizer for gasses other than oxygen, hydrogen and carbon dioxide is provided in said combustion chamber body.

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66. Nonetheless, with reference to figure 1 below, Fujimori discloses an incinerator wherein a neutralizer injector (referenced in the figure) for filling a neutralizer for gasses other than oxygen, hydrogen and carbon dioxide is provided in a combustion chamber body (4). (See col. 5, line 58 through col. 6, line 18).

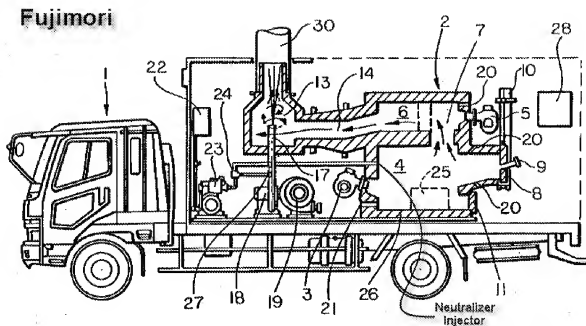


FIG. 1

67. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ahern to include a neutralizer injector as taught by Fujimori, since Fujimori states that such a modification would sterilize noxious gases present in the combustion gas prior to venting and thereby prevent the combustion gas from polluting the environment (see Fujimori, col. 1, ll. 13-16; 65-67).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE PEREIRO whose telephone number is (571) 270-3932. The examiner can normally be reached on Mon.-Fri. 9:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jorge Perciro  
Examiner  
Art Unit 3749

/Steven B. McAllister/  
Supervisory Patent Examiner, Art Unit 3749